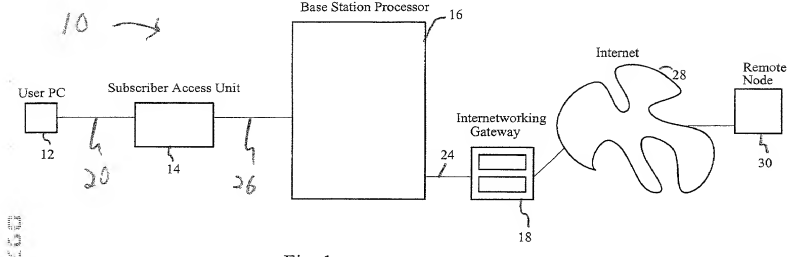

10
Base Station Processor
16
Internet
28
Remote Node
User PC
Subscriber Access Unit
Internetworking Gateway
12
20
14
26
24
30
18

Fig. 1

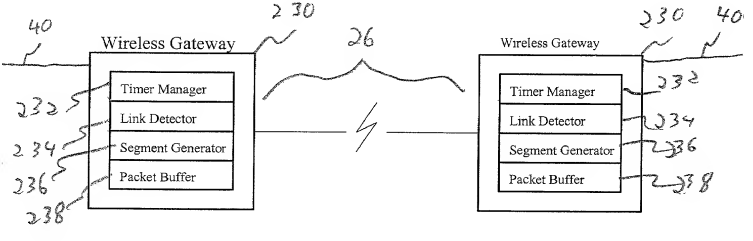

40
230
26
230
40
Wireless Gateway
Wireless Gateway
Timer Manager
Link Detector
Segment Generator
Packet Buffer
232
234
236
238
Timer Manager
Link Detector
Segment Generator
Packet Buffer
232
234
236
238

Fig 2

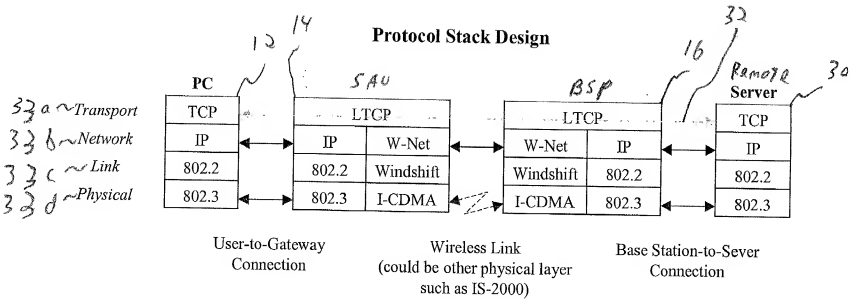

Protocol Stack Design
12
14
32
16
30
PC
SAU
BSP
Remote Server
33a ~Transport
33b ~Network
33c ~Link
33d ~Physical
TCP
IP
802.2
802.3
LTCP
W-Net
Windshift
I-CDMA
User-to-Gateway Connection
Wireless Link (could be other physical layer such as IS-2000)
Base Station-to-Sever Connection

Fig. 3

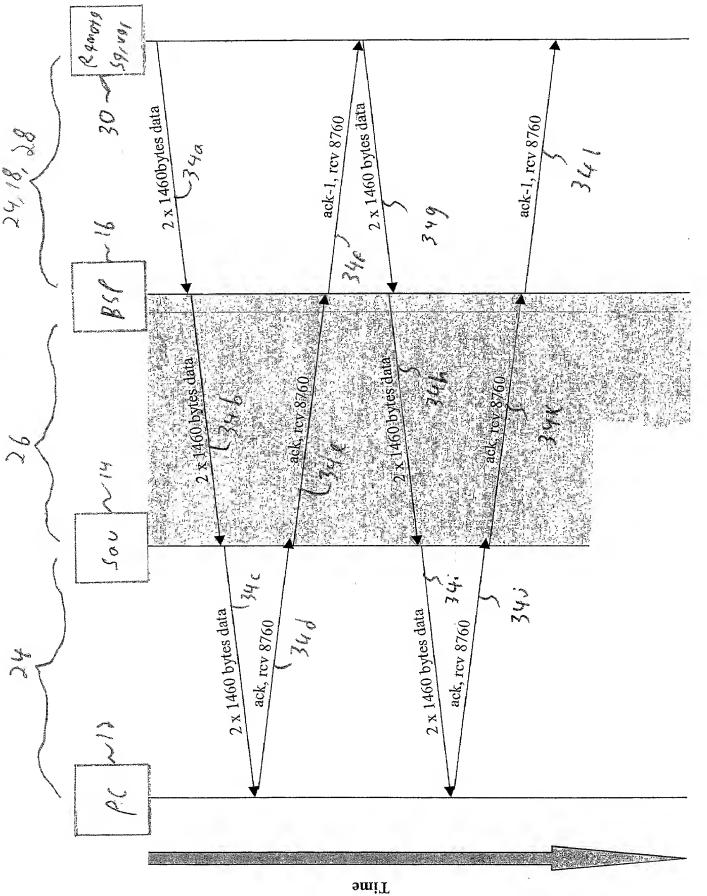

PC
SGW
BSR
Remote Host
24
26
28
30
2 x 1460bytes data
2 x 1460 bytes data
ack, rcv 8760
ack-1, rcv 8760
Time

Fig. 4

PC
12
24
SAU
14
26
BSP
16
Remote Server
30
24, 18, 28
Time
2 x 1460 bytes data
ack, rcv 8760
2 x 1460 data
ack, rcv 8760
2 x 1460 bytes data
2 x 1460 bytes data
ack-1, rcv 8760
2 x 1460 data
ack-1, rcv 0
The Server TCP is now in persist mode.
ack -1, rcv 8760
2 x 1460 bytes data
2 x 1460 bytes data
36a
36b
36c
36d
36e
36f
36g
36h
36i
36j
36k
36m
36n
36p
38
40

Fig. 5

PC
12
24
SAU
14
26
BSP
16
Remote Server
30
34, 18, 28
Time
2 x 1460 bytes data
38a
ack, rcv 8760
38b
2 x 1460 bytes data
38c
ack, rcv 8760
38d
1 x 1460 bytes data
38e
ack-1, rcv 1460
38f
1 x 1460 bytes data
38g
1 x 1460 bytes data
38h
ack, rcv 8760
38i
1 x 1460 bytes data
38j
ack-1, rcv 1460
38k
1 x 1460 bytes data
38l
1 x 1460 bytes data
38m

Fig. 6

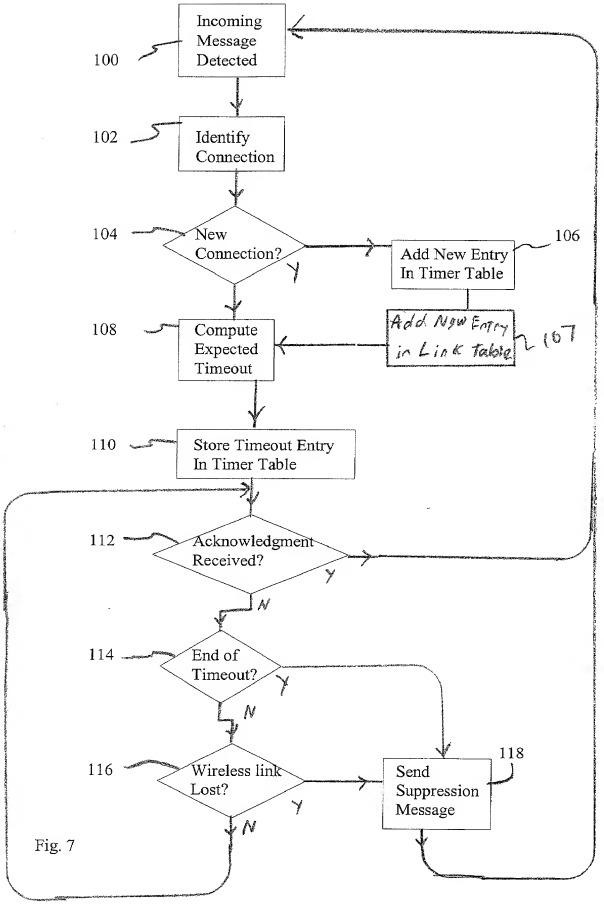

Incoming Message Detected
100
Identify Connection
102
New Connection?
104
Y
Add New Entry In Timer Table
106
Add New Entry in Link Table
107
Compute Expected Timeout
108
Store Timeout Entry In Timer Table
110
Acknowledgment Received?
112
Y
N
End of Timeout?
114
Y
N
Wireless link Lost?
116
Y
N
Send Suppression Message
118

Fig. 7

Wireless Gateway
Timer Manager
Con
TO
Link Detector
Con
Link
Segment Generator
Packet Buffer
PC
290
292
295
26
12
294
296
298
SYN C33
SYN C17
ACK C33
ACK C17

Fig. 8a

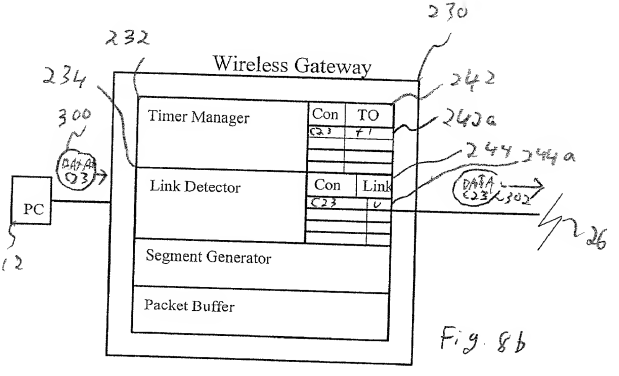

230
232
Wireless Gateway
234
242
300
Timer Manager
Con
TO
242a
244
244a
Link Detector
Con
Link
PC
Segment Generator
Packet Buffer
12
26

Fig. 8b

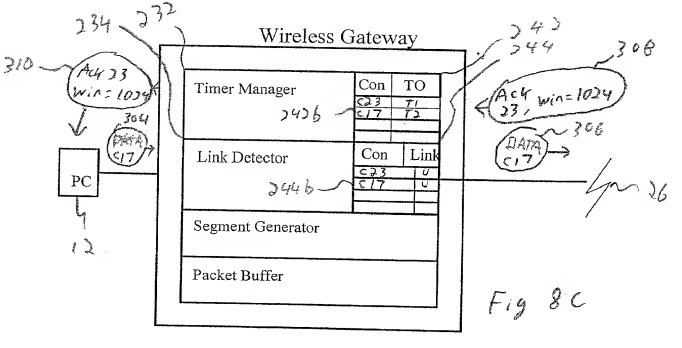
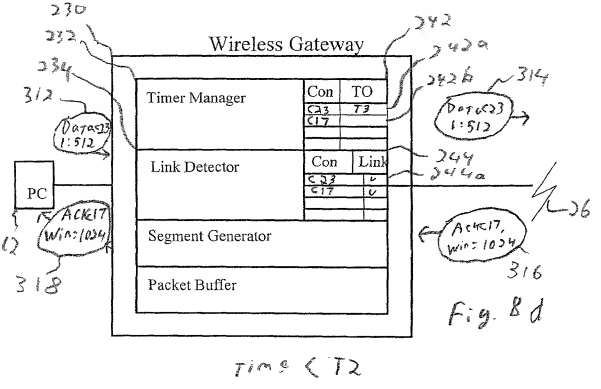
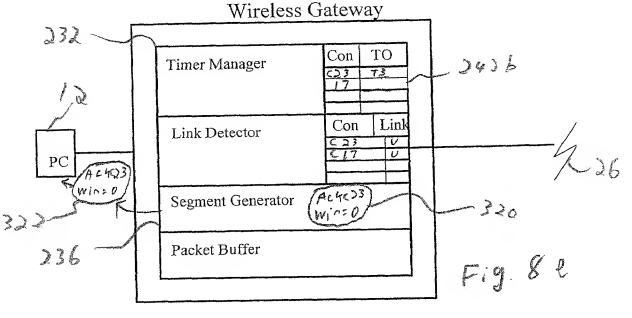

234
232
Wireless Gateway
242
244
308
310
304
Timer Manager
Con
TO
242b
Link Detector
Con
Link
244b
PC
Segment Generator
Packet Buffer
12
26

Fig. 8c



time < T2



time: T3

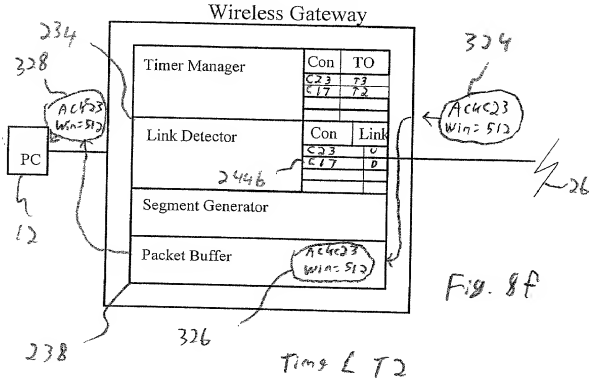

Wireless Gateway
234
328
334
Timer Manager
Con
TO
C23
T3
C17
T2
ACK23
Win=512
ACK23
Win=512
Link Detector
Con
Link
C23
U
C17
D
PC
12
346
26
Segment Generator
Packet Buffer
ACK23
Win=512
238
326
Time L T2

Fig. 8f

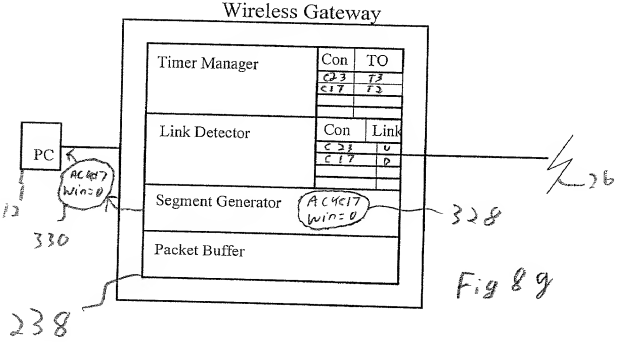

Wireless Gateway
Timer Manager
Con
TO
C23
T3
C17
T2
Link Detector
Con
Link
C23
U
C17
D
PC
ACK17
Win=0
26
12
Segment Generator
ACK17
Win=0
328
330
Packet Buffer
238

Fig 8g